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HEALTH INFORMATION

COX-2 drugs may suppress immune function-study

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By Maggie Fox

WASHINGTON (Reuters) - Painkillers called COX-2 inhibitors, which U.S. health officials restricted on Thursday, can not only damage the heart and blood vessels but may also suppress the immune system, researchers said.

A study published this week in the Journal of Immunology shows the drugs, used by arthritis sufferers, might affect the antibodies that attack invading germs.

This could be both good news and bad news for the drugs, which have also recently been shown to double or triple the risk of heart attacks and strokes, the researchers at the University of Rochester in New York said.

Pfizer Inc. suspended sales of its COX-2 inhibitor Bextra on Thursday at the request of U.S., European and Canadian regulators.

The U.S. Food and Drug Administration also asked Pfizer to include a strong "black box" warning for its COX-2 Celebrex. Merck & Co.'s COX-2 Vioxx was withdrawn last year.

The COX-2 drugs were designed to be safer replacements for non-steroidal anti-inflammatory drugs, or NSAIDS, such as aspirin, ibuprofen and naproxen. NSAIDS can cause often deadly gastrointestinal bleeding and are blamed for 16,000 deaths a year in the United States.

NSAIDS affect two enzymes, COX-1 and COX-2, while the COX-2 inhibitors were meant to decrease side effects by targeting only COX-2, which is involved in inflammation.

Richard Phipps, a professor of microbiology and immunology at Rochester, said suppressing inflammation meant also suppressing immune function.

"We showed that B lymphocytes pulled right out of a person's blood and appropriately activated expressed lots of the COX-2 enzyme," Phipps said in a telephone interview.

"That tells us that they must be important for something."

They gave Celebrex, as well as an NSAID called indomethacin, to mice and put it onto human cells in the lab. This caused the immune cells to produce much less antibody than usual.

"That could be good. There are situations where you may want to reduce antibody production - for example in people with autoimmune diseases such as rheumatoid arthritis and lupus," Phipps said.

In autoimmune disease the body mistakenly attacks healthy tissue. Non-Hodgkin's lymphoma is a cancer involving B cells so the drugs have the potential to be useful there, too.

"But if you are getting vaccinated and trying to generate an antibody response to a virus or toxin, you want to have an optimal antibody response," he said.

Long-term use of COX-2s could have the potential to make people more vulnerable to infections that the body fights using antibodies, Phipps said - such as pneumococcal bacteria, the Haemophilus influenzae bacteria that cause upper respiratory infections and the influenza virus.

Aspirin has much weaker effects on immune function, Phipps said.

Last year Dr. Garret Fitzgerald of the University of Pennsylvania found that COX-2 inhibitors can damage the blood vessels in several ways.

FitzGerald's team found that a fatty acid made by the COX-2 enzyme protects female mice from hardening of the arteries. Shutting down COX-2 long term may actually kick-start atherosclerosis, FitzGerald said.

In mice, the hormone estrogen generates a fatty acid from COX-2 called PGI2, which limits activation of blood platelets that can cause clots and may damage artery walls. PGI2 also reduces oxidative stress that damages the insides of arteries.

The EpochTimes

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Reuters

Apr 19, 2005

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